

2012 Compensatory Mitigation Monitoring Report

L.E. CARPENTER & COMPANY

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Morris County, New Jersey*

NJDEP File #1439-04-0001.1

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INTRODUCTION

L.E. Carpenter & Company (LEC) implemented a Remedial Action Work Plan (RAWP) for the impacted portion of their \pm 14.6-acre site (approximately 4.7 acres of disturbed area) located at 170 North Main Street, Borough of Wharton, Morris County, New Jersey (Figure 1). The site comprises Block 301, Lot 1 and Block 703, Lot 30 on the Borough of Wharton tax map. The project area is located in the USGS Dover, New Jersey quadrangle with center state plane coordinates of N 754326.5 E 470891.83 (NAD 1983) (Figure 2). A 2002 aerial photograph of the project site is also included (Figure 3).

Due to the parcel's previous utilization for mining and forging throughout the 1700's and 1800's, and vinyl manufacturing from 1943 to 1987, contaminated soils and groundwater were identified on the site. TRC, Inc. (TRC), on behalf of LEC, worked with the U.S. Environmental Protection Agency (USEPA) and the New Jersey Department of Environmental Protection (NJDEP) to implement the RAWP for those impacted areas of the property.

As part of the RAWP, several "Hot Spots" (areas exhibiting either inorganic or organic contaminant concentrations in soil in excess of the 1994 Record of Decision (ROD) cleanup criteria) were identified across the site for removal. Several areas identified for contaminant removal overlapped with jurisdictional wetlands on site. A total of 0.337 acre of jurisdictional wetlands was temporarily impacted as a result of site remediation activities (Figure 4). This acreage consisted of a 0.003 acre and 0.009 acre lobe of forested/scrub-shrub wetland on site, 0.286 acre of forested/scrub-shrub and emergent marsh wetland to the east on the Wharton Enterprise property, and 0.039 acre of the Air Products open-water drainage channel relocation to the northeast. Due to the fact that project activities and wetlands extend off site onto adjacent properties, the project area or site referenced in this plan includes the LEC parcel, several acres of the Wharton Enterprises parcel to the east, and the Air Products drainage channel to the northeast.

Upon completion of cleanup activities, the entire 0.337 acre of wetland disturbance was restored and enhanced as more diverse emergent wetland communities. All temporary wetland impacts were restored and mitigated for at their current locations. A Wetland Mitigation Construction Final Report, dated August 28, 2005, was submitted to the NJDEP upon completion of restoration activities.

The main source of hydrology for the restored wetland is a direct surface water flow from the Rockaway River. The wetland area was restored to pre-cleanup grades. The intention was to restore and enhance the pre-existing wetland so that there is no-net loss of wetlands as a result of the clean-up work completed by LEC.

The primary means through which wetland vegetation will be established in the mitigation area is through planting native seed and bare root stock trees, as well as natural colonization from the adjacent wetland areas. For a list of planted species within the mitigation area and transition zone, see Appendix A.

MONITORING

Annual monitoring of the mitigation area was proposed originally for five years. Due to the installation of the monitoring wells on site and subsequent disturbance, the site has continued to be monitored. Annual monitoring will continue unless it is apparent the wetland has been successfully established, upon which case the permittee will propose elimination of any subsequent reports in writing to the NJDEP. Only upon written concurrence from the NJDEP will any reporting requirements be eliminated.

LEC will submit annual reports to the NJDEP by December 31 of each monitoring year in accordance with the requirements outlined in the NJDEP Mitigation Project Monitoring Reports Checklist for Completeness. The monitoring reports will, at a minimum, include the following:

1. Photographs of the wetland mitigation areas.
2. Assessment of vegetative communities and evaluation of whether a dominance of wetland species exists (according to federal wetland indicator status of species identified).
3. Wildlife utilization evaluation.
4. Hydrology evaluation.
5. Soil evaluation.
6. Sediment loading evaluation.
7. Evaluation of sideslope and transition area conditions. Evaluation of overall progress toward successful achievement of wetland creation as designed, per each of the performance standards dictated for the project. Perform a comparative assessment between existing conditions and the performance standards.

This document will serve as the eighth annual monitoring report.

METHODS

A spring site visit was completed on May 18, 2012 followed by a thorough review of the mitigation site on September 11, 2012. During the May visit, conditions were sunny with a temperature of 80° F while conditions were sunny and 53° F during the September site visit. During the May 18th and September 11th site visits, the invasive species of purple loosestrife (*Lythrum salicaria*) and reed canary grass (*Phalaris arundinacea*) were chemically treated. During the September site visit, autumn olive (*Elaeagnus umbellata*) and multiflora rose (*Rosa multiflora*) were cut and the stumps treated to prevent further spread of these species.

The wetland was walked using the random meander method. All plant species encountered during the walk-through were recorded on inventory data sheets until no new plant species were observed (Appendix B). Plant names were used as listed in Gleason and Cronquist (1991).

Three permanent transects were set up in order to measure percent cover of vegetation in the wetland (Figure 4). Several 1-m² plots were laid along the transect in order to measure the vegetative cover. A percent cover value was assigned to each species found in the plots. Total vegetative cover was calculated by averaging the vegetative cover from each plot along the transect (Appendix B).

Information on hydrology was collected using evidence provided by soil pits. Permanent reference points were located at the beginning of each transect so that water levels are recorded in the same location from year-to-year. The site was also inspected for problems such as erosion, sedimentation, and water quality issues. Signs of wildlife use were recorded during the walk-through. Finally, permanent photopoint locations were identified and reference photographs were taken.

VEGETATIVE COMMUNITY

The data from the plots was used to describe the vegetative cover. Of the total wetland and transition areas, an average of 97% was vegetated and 3% was bare soil, which was a slight increase in vegetative cover by 2% from 2011. The total vegetative cover in the emergent zone was 95% (96% in 2011), while the vegetative cover of the forested zone was 100% (95% in 2011). The vegetative cover in the transition zone increased from 94% in 2011 to 96% in 2012. The total number of species has increased in both the emergent and forested zones, while the actual vegetative cover by native wetland indicator species increased slightly in the forested zone, and decreased in the emergent zone compared to 2011 (Tables 1 and 2). The total number of species in the transition zone increased from 2011, and remains high considering the small size of the transition zone (Table 3).

Table 1. A summary of species diversity in the emergent zone

Year	Total # Species	# Native Wetland Indicator Species (NWIS)	# Native Species	Percent Vegetative Cover	Percent Actual Vegetative Cover by NWIS
2005	49	19 (39%)	29 (59%)	77%	11%
2006	46	24 (52%)	31 (67%)	90%	38%
2007	56	36 (64%)	44 (79%)	78%	31%
2008	48	24 (50%)	32 (67%)	89%	39%
2009	71	39 (55%)	50 (70%)	100%	41%
2010	86	43 (50%)	56 (65%)	98%	30%
2011	87	49 (56%)	59 (68%)	96%	31%
2012	93	51 (55%)	63 (68%)	95%	29%

Dominant species, based on relative cover (RC), in the emergent zone include panic grass (*Panicum dichotomiflorum*) (16.9% RC), small carp grass (*Arthraxon hispidus*) (15.0% RC), Japanese stilt grass (*Microstegium vimineum*) (11.3% RC), long scaled nut sedge (*Cyperus strigosus*) (6.1% RC), and barnyard grass (*Echinochloa crusgalli*) (6.0% RC). Dominant species in the forested/scrub-shrub zone include small carp grass (18.5% RC), birdsfoot trefoil (*Lotus*

corniculata) (10.1% RC), common plantain (*Plantago major*) (9.5% RC), panic grass (8.4% RC), and sneezeweed (*Helenium autumnale*) (7.0% RC). Dominant species in the transition zone include Japanese stilt grass (13.6% RC), mugwort (*Artemisia vulgaris*) (12.9% RC), grass-leaved goldenrod (*Euthamia graminifolia*) (8.8% RC), tall goldenrod (*Solidago altissima*) (8.8% RC), old field cinquefoil (*Potentilla simplex*) (6.2% RC), and panic grass (6.2% RC).

Table 2. A summary of species diversity in the forested/scrub-shrub zone

Year	Total # Species	# Native Wetland Indicator Species (NWIS)	# Native Species	Percent Vegetative Cover	Percent Actual Vegetative Cover by NWIS
2005	51	23 (45%)	34 (67%)	82%	10%
2006	53	29 (55%)	41 (77%)	98%	26%
2007	54	23 (43%)	36 (67%)	82%	41%
2008	70	37 (53%)	48 (69%)	98%	53%
2009	76	36 (47%)	55 (72%)	98%	55%
2010	92	42 (46%)	59 (64%)	92%	34%
2011	98	47 (48%)	68 (69%)	95%	34%
2012	106	57 (54%)	71 (67%)	100%	38%

Table 3. A summary of species diversity in the transition zone

Year	Total # Species	# Native Wetland Indicator Species (NWIS)	# Native Species	Percent Vegetative Cover
2005	37	7 (19%)	19 (51%)	62%
2006	49	10 (31%)	28 (57%)	94%
2007	63	19 (30%)	39 (62%)	100%
2008	69	14 (20%)	38 (55%)	97%
2009	61	18 (30%)	34 (56%)	99%
2010	66	19 (29%)	37 (56%)	92%
2011	73	24 (33%)	42 (58%)	94%
2012	84	44 (52%)	49 (58%)	96%

The following invasive species were observed within the mitigation wetlands during the 2012 monitoring visit: reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), autumn olive (*Elaeagnus umbellata*), and multiflora rose (*Rosa multiflora*). Since the monitoring period began, purple loosestrife and reed canary grass have been found around the eastern perimeter of the emergent and forested zones. A few scattered plants of common reed were present within the mitigation area, which was a slight increase since 2011. Autumn olive and multiflora rose were present in scattered throughout the mitigation area.

In the emergent zone, the relative cover of purple loosestrife was 3.0%, the lowest level since monitoring began (7.4% RC in 2007, 4.9% RC in 2008, 3.8% RC in 2009, 4.5% RC in 2010, and

9.9% in 2011). The relative cover of reed canary grass was 4.4% (2007-3.4% RC, 2008-2.7% RC, 2009-3.5%, 2010-4.4%, and 2011-4.2%).

In the forested zone, purple loosestrife had a relative cover of 2.1% (2006-5.3% RC, 2007-4.2% RC, 2008-2.0% RC, 2009-3.5% RC, 2010-1.0%, 2011-7.4% RC). Reed canary grass increased to 2.8% relative cover from 0.8% in 2011.

The other invasive species previously mentioned were not present in high enough numbers to appear in the transect data. All invasive species will continue to be selectively treated using wetland-approved herbicides. Annual treatments will be performed twice each year through September 2013, or until invasive populations have been effectively controlled.

During the 2007 site visit, it was noted that all of the planted (June 28, 2005) bareroot trees and shrubs had died through a combination of drought conditions and deer predation. In May of 2008, 275 supplemental bareroot trees and shrubs were installed (Appendix A) with predator guards, to encourage sufficient coverage to meet mitigation requirements. During the August 28, 2008 site visit, 165 trees and shrubs were sampled to determine survival. Of the 165 sampled trees, a total of 73 live trees were counted (44.2% survival) in 2008, and 61 (37% survival) in 2009. During the 2010 site visit the total number of live trees sampled was 50 (30% survival), and while none were found living during the 2011 site visit.

During the fourth quarter of 2011, a Supplemental Remedial Investigation (RI) was required by an administrative order from the USEPA and NJDEP. As a follow up to the Supplemental RI, a bench-scale treatability study was conducted on the soil and underlying groundwater within the wetland mitigation area to determine an appropriate remedial alternative. TRC proposed the use of a phytoremediation pilot study within the wetlands area of the site, which was approved by the USEPA and NJDEP. The pilot study includes the installation of 25 to 35 trees primarily in the central eastern end of the wetland mitigation area. The species to be planted will be similar to those already present within the mitigation area. The proposed 6 to 9-foot trees in 15 gallon pots will be installed with predator guards. The pilot study is scheduled to be completed in the fourth quarter of 2012 or the first quarter of 2013, pending final property access agreements.

MAINTENANCE

Invasive or noxious vegetation can oftentimes prevent or hinder the successful establishment of native species in a wetland mitigation area. For this reason, a routine wetland maintenance program is being implemented at the LEC project site. This program includes semi-annual site visits to assess and treat (if necessary) any invasive species found on the property. Based on knowledge of the site and adjacent communities, chemical applications have been selected as the most effective maintenance tool for control of invasive species. Invasive species on the site were chemically treated on May 18 and September 11, 2012. As previously mentioned, additional invasive species control measures were implemented on autumn olive and multiflora rose during the September site visit. It had been noted during previous visits that autumn olive and multiflora rose were beginning to increase in the emergent and forested zones. These species

were cut to within at least 6 inches of the ground surface, and then a 50% glyphosate mixture was applied manually using a sponge. This method was chosen, despite being more labor intensive, due to its selectivity and minimal damage to surrounding vegetation.

As mentioned in the 2011 report, the purple loosestrife population had increased to levels higher than had been documented since the establishment of the site. The majority of plants identified during the September 2011 site visit were less than 4 inches in height, which indicated they had germinated after the May 2011 site visit. This was primarily due to the exceptionally wet growing season in 2011, which created ideal conditions for germination of the purple loosestrife seedbank. The herbicide applications of September 2011 and May 2012 were successful and reduced the population in both the emergent and forested zones to a relative cover of 3.0% and 2.1% respectively.

Subsequent to permit issuance and after the restored wetland areas had been planted, several federal agency personnel raised a concern over the use of barnyard grass (*Echinochloa crusgalli*) in the wetland restoration seed mix. Due to the fact that several respected botanical sources disagree on the status of barnyard grass as a native versus non-native species, it was decided that barnyard grass populations on the project site will be monitored. If at any time it is determined that barnyard grass is having a detrimental effect on the mitigation area or prohibiting the establishment of other native species, it will be effectively controlled during the semi-annual maintenance site inspections. During the 2012 site visit, barnyard grass had a relative cover of 1.3% within the forested zone transect, and 6.0% relative cover within the emergent zone transect. Although this represents an increase in coverage since 2011, this species will be further monitored in 2013 in an attempt to document any long-term trends.

HYDROLOGY AND WATER QUALITY

During the May 25th site visit, hydrology was present throughout the emergent and forested zones ranging from saturation at the surface to 4 inches of inundation in the emergent zone and 5 inches of inundation in the forested zone. During the September 11th site visit, the soil was moist at the surface with up to 4 inches of inundation. Soil pits indicated the presence of the water table 5 inches below the soil surface.

WILDLIFE HABITAT

Evidence of wildlife use was present in the mitigation wetland (Table 4). The presence of white-tailed deer and Canada Goose continue to be evident, though herbivory by these species does not appear to have caused detrimental harm to the herbaceous species. The complete loss of all planted trees in 2005 may be directly related to the herbivory by white-tailed deer. An increasing number of wildlife species were identified on site as seven new species were added to the list in 2011.

Table 4. Comprehensive list of wildlife observations in the mitigation wetland

SCIENTIFIC NAME	COMMON NAME
BIRDS	
<i>Agelaius phoeniceus</i>	Red-winged Blackbird
<i>Ardea herodias</i>	Great Blue Heron
<i>Branta canadensis</i>	Canada Goose*
<i>Buteo jamaicensis</i>	Red-Tailed Hawk
<i>Colaptes auratus</i>	Northern Flicker
<i>Cyanocitta cristata</i>	Blue Jay*
<i>Dumetella carolinensis</i>	Gray Catbird*
<i>Hirundo rustica</i>	Barn Swallow*
<i>Melospiza melodia</i>	Song Sparrow*
<i>Poecile atricapilla</i>	Black-capped Chickadee*
<i>Quiscalus quiscula</i>	Common Grackle*
<i>Troglodytes aedon</i>	House Wren*
<i>Turdus migratorius</i>	American Robin*
<i>Tyrannus tyrannus</i>	Eastern Kingbird
<i>Zenaida macroura</i>	Mourning Dove
AMPHIBIANS/REPTILES	
<i>Chrysemys picta</i>	Eastern painted turtle*
<i>Rana clamitans</i>	Green frog*
<i>Rana sphenoccephala</i>	Southern leopard frog*
<i>Thamnophis sirtalis</i>	Common garter snake*
MAMMALS	
<i>Odocoileus virginianus</i>	White-tailed deer*
<i>Procyon lotor</i>	Raccoon*
INSECTS	
<i>Papilio glaucus</i>	Tiger swallowtail
Family Acrididae	Short-horned grasshoppers*
Order Mantodea	Praying mantis species*
Order Odonata	Red dragonflies
Order Odonata	Blue damselflies
<i>Libellula pulchella</i>	Twelve-spot skimmer*

*Observed in 2012

SOILS

During the 2012 site visit, soil characteristics and textures were not specifically examined due to the fact that this had previously been done in June 2005. Results of the soil profile review were presented in the Wetland Mitigation Construction Final Report, dated August 28, 2005, and are again presented below (Table 5).

Table 5. Soil profile review

	Soil Depth	Munsell Soil Color	Soil Texture
Boring 1 (40.54.15.00748N 74.34.31.41719W)	0-10" 10-20"	10YR 4/3 10YR 3/3	Loam Loam
Boring 2 (40.54.14.42438N 74.34.31.14259W)	0-13" 13-20"	10YR 4/2 10YR 3/2	Loamy clay Loamy clay
Boring 3 (40.54.13.75148N 74.34.31.31904W)	0-15" 15-20"	10YR 4/3 10YR 3/1	Loam Loamy clay
Boring 4 (40.54.13.94790N 74.34.29.98567W)	0-2" 2-20"	10YR 4/3 10YR 3/2	Loam Loam
Boring 5 (40.54.14.63046N 74.34.29.45719W)	0-9" 9-20"	10YR 4/3 10YR 3/2	Loam Loam
Boring 6 (40.54.12.80847N 74.34.34.70682W)	0-20"	10YR 3/3	Loam

SEDIMENTATION AND EROSION CONTROL

As a result of the site work done during the fourth quarter of 2011, some of the vegetation throughout the mitigation area was disturbed or eliminated, and bare ground was present during the May 2012 site visit. Vegetation had begun to re-establish at the time of the September site visit, and it is anticipated the seed bank, as well as the surrounding vegetation, will be a sufficient seed source for re-establishment.

CONCLUSIONS

The mitigation area was constructed during an extremely dry growing season, and late installation of seed and bare root trees, as well as herbivory by white-tailed deer and Canada Goose, were causes for the slow development of the mitigation wetland areas. However, during the May 29, 2008 site visit, 275 bare root trees and shrubs were installed with predator guards to compensate for the complete mortality of the 2005 woody plant installation. Despite the loss of the 2008 plantings, it is expected that the forested zone will continue to develop through natural succession as the large trees within and surrounding the mitigation wetland provide a heavy seed source for future colonization. Future sampling of this establishment will occur as the small seedlings increase in size. The phytoremediation plantings approved by the USEPA and NJDEP will also quickly add larger tree stock to the mitigation wetland. The survival of the larger trees to be planted will be documented during future monitoring visits. The actual percent cover by native wetland species has increased since construction of the site, but still remains lower than the required 85% cover by native wetland species. The diversity of each of the zones is very

high with consideration to the size of each zone. During the 2012 site visits, there were 93 species identified in the emergent zone, 106 species in the forested zone, and 84 species in the transition zone.

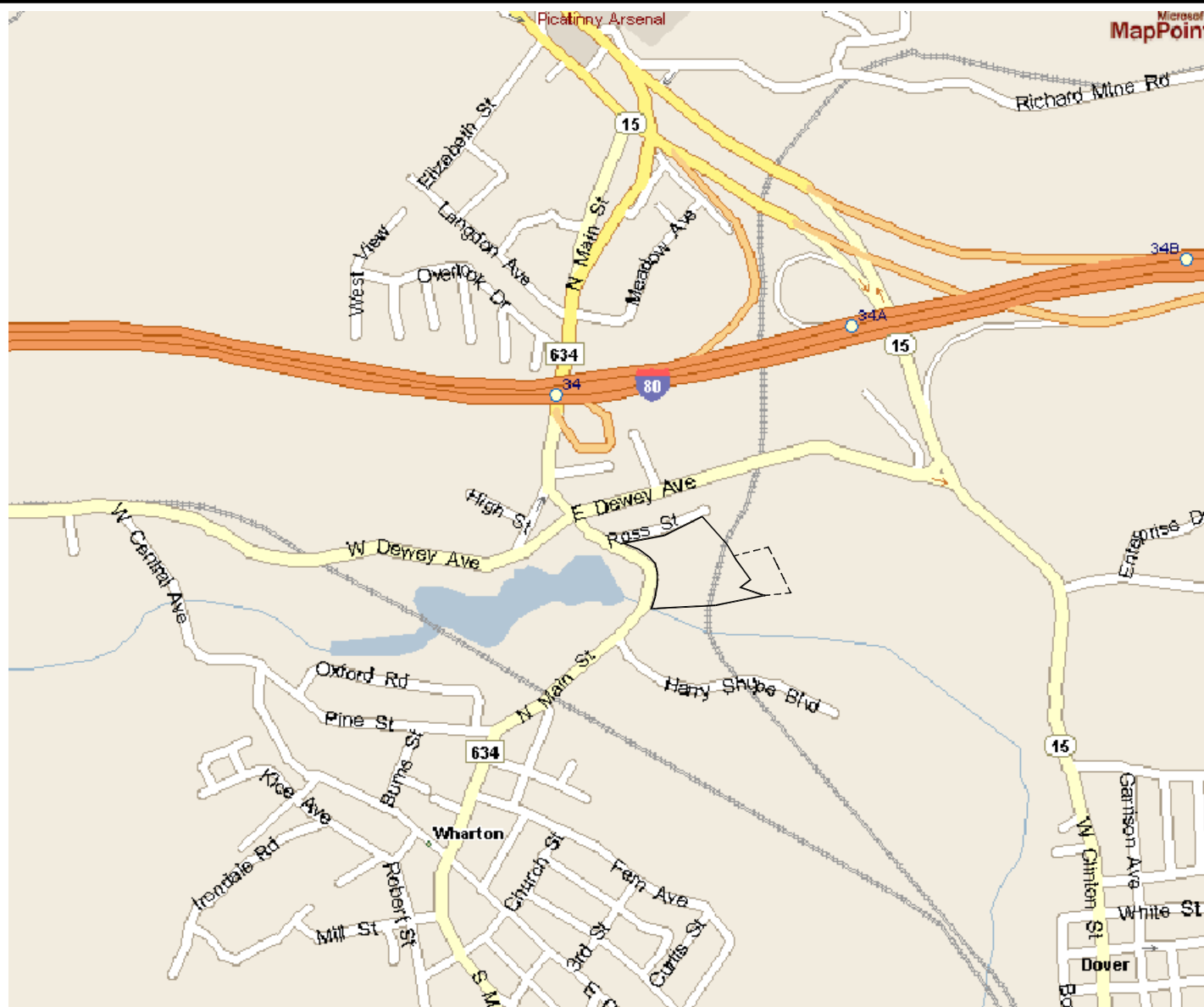
At this time, it is recommended that LEC continue maintenance visits to eliminate or effectively control invasive species presence in the wetland mitigation and transition areas. While the invasive species control performed on the autumn olive and multiflora rose in 2011 has reduced the population, small shrubs continue to establish on site, and future visits will address the presence of these species on an as-needed basis.

Due to the fact that wetland communities surround the mitigation site and the elevations of the site were restored to pre-existing contours with no impedance to surface or groundwater flow, we expect that wetland and transition zone restoration will continue to progress and be successful.

REFERENCES

Gleason, Henry and Arthur Cronquist. 1991. *Manual of Vascular Plants of North-eastern United States and Adjacent Canada*. D. Van Nostrand Company, New York, New York. 910 pp.

Figures



LEGEND



- APPROXIMATE PROPERTY BOUNDARY



- EXPANDED PROJECT AREA



Western Michigan
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FIGURE 1 - LOCATION MAP

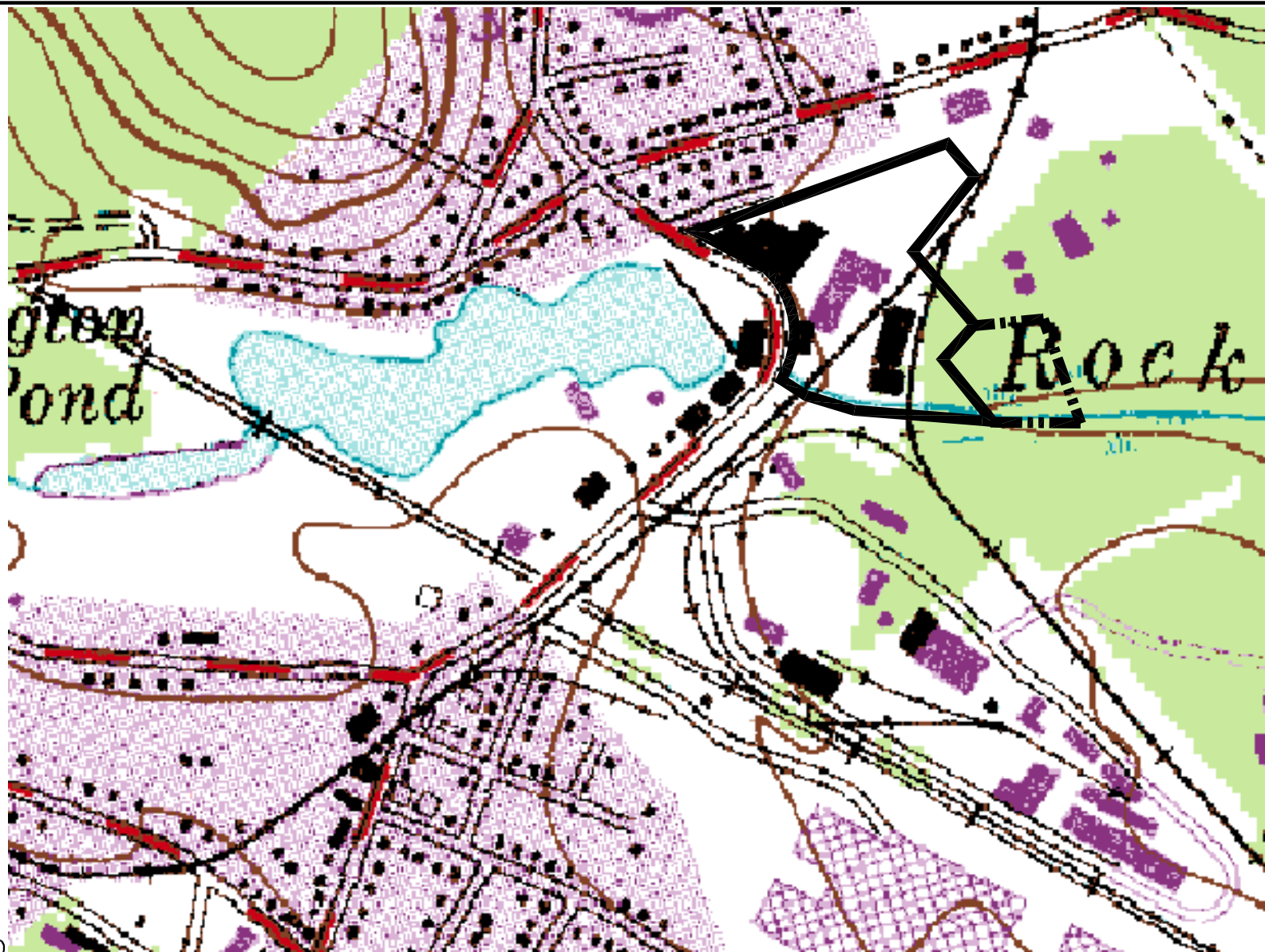
L.E. CARPENTER
WHARTON, NEW JERSEY



SCALE: NTS

DATE: 12.13.11

FILE: 040229LocationMap



LEGEND



- APPROXIMATE PROPERTY BOUNDARY



- EXPANDED PROJECT AREA

NOTES

STATE PLANE COORDINATES -
754326.58N 470891.83E (NAD83)

SOURCE:USGS DOVER,NJ QUADRANGLE

HUC-14 CODE 02030103030070



Western Michigan
11181 Marwill Avenue
West Olive, Michigan 49460
616-847-1680
www.cardnojfnew.com

FIGURE 2 - USGS MAP

L.E. CARPENTER
WHARTON, NEW JERSEY



SCALE: NTS

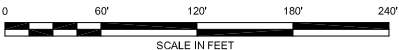
DATE: 12.30.10


FILE: 040229USGSmap

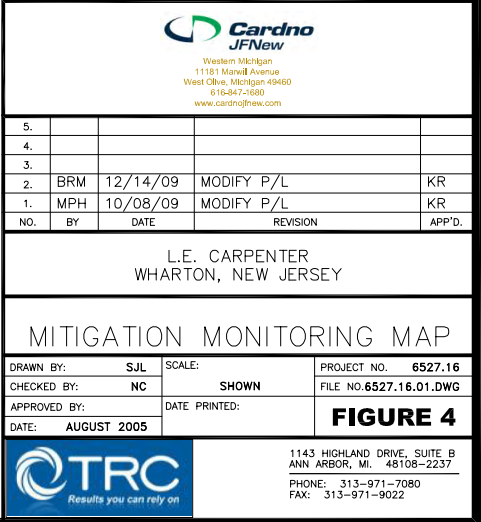


NOTES

1. AERIAL PHOTOGRAPH, DATED 2007.



5.				
4.				
3.				
2.				
1.				
NO.	BY	DATE	REVISION	APP'D.
L.E. CARPENTER WHARTON, NEW JERSEY				
FIGURE 3: 2007 AERIAL PHOTOGRAPH				
DRAWN BY: SJL		SCALE:		PROJECT NO. 6527.02
CHECKED BY: DD,NC		SHOWN		FILE NO. 6527.02
APPROVED BY: NC		DATE PRINTED:		FIGURE 3
DATE: APRIL 2004				
 Results you can rely on		1143 HIGHLAND DRIVE, SUITE B ANN ARBOR, MI. 48108-2237 PHONE: 313-971-7080 FAX: 313-971-9022		



Appendices

Appendix A: Planting List

EMERGENT WETLAND IMPACT AREA (0.19 acre)

Emergent Wetland Seed Mix (32.27 pounds/acre)

Native Component

<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Acorus calamus</i>	Sweet flag	8.50
<i>Alisma subcordatum</i>	Common water plantain	8.00
<i>Echinochloa crusgalli</i>	Barnyard grass	12.00
<i>Eleocharis ovata</i>	Blunt spike rush	3.00
<i>Iris virginica shrevei</i>	Blue flag iris	4.00
<i>Juncus effusus</i>	Soft rush	3.00
<i>Leersia oryzoides</i>	Rice cut grass	4.00
<i>Lobelia cardinalis</i>	Cardinal flower	0.75
<i>Lobelia siphilitica</i>	Great blue lobelia	1.00
<i>Mimulus ringens</i>	Monkey flower	2.00
<i>Peltandra virginica</i>	Arrow arum	16.00
<i>Polygonum pensylvanicum</i>	Pinkweed	6.00
<i>Pontederia cordata</i>	Pickernelweed	8.00
<i>Sagittaria latifolia</i>	Common arrowhead	8.00
<i>Scirpus validus</i>	Softstem bulrush	6.00
<i>Sparganium eurycarpum</i>	Common burreed	<u>10.00</u>
TOTAL NATIVE FORBS AND GRASSES		100.25 = (6.27 lbs/acre)

Temporary Cover Component

<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Agrostis gigantea</i>	Redtop	16.00
<i>Lolium perenne</i>	Annual rye	<u>400.00</u>
TOTAL		416.00 = (26.00 lbs/acre)

FORESTED/SCRUB-SHRUB IMPACT AREA (0.20 acre)

Wooded Wetland Understory Seed Mix (34.41 pounds/acre)

Native Component

<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Alisma subcordatum</i>	Common water plantain	3.00
<i>Aster umbellatus</i>	Flat-top aster	1.25
<i>Bidens cernua</i>	Nodding bur marigold	3.00
<i>Calamagrostis canadensis</i>	Blue joint grass	3.00
<i>Carex crinita</i>	Fringed sedge	2.00
<i>Carex hystericina</i>	Porcupine sedge	4.00
<i>Carex lupulina</i>	Common hop sedge	4.00
<i>Carex vulpinoidea</i>	Fox sedge	6.00
<i>Chelone glabra</i>	Turtlehead	1.25
<i>Elymus canadensis</i>	Canada wild rye	6.00
<i>Elymus virginicus</i>	Virginia wild rye	12.00
<i>Glyceria striata</i>	Fowl manna grass	4.00
<i>Helenium autumnale</i>	Sneezeweed	1.50
<i>Leersia oryzoides</i>	Rice cut grass	2.00
<i>Lobelia silphilitica</i>	Great blue lobelia	1.50
<i>Mimulus ringens</i>	Monkeyflower	1.75
<i>Panicum virgatum</i>	Switch grass	2.50
<i>Rudbeckia laciniata</i>	Wild golden glow	0.75
<i>Scirpus atrovirens</i>	Dark green rush	6.00
<i>Spartina pectinata</i>	Prairie cord grass	4.00
<i>Verbesina alternifolia</i>	Wingstem	1.00
TOTAL NATIVE FORBS AND GRASSES		70.50 = (4.41 lbs/acre)

Temporary Cover Component

<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Agrostis gigantea</i>	Redtop	16.00
<i>Elymus hystrix</i>	Eastern bottlebrush grass	64.00
<i>Lolium multiflorum</i>	Annual rye	400.00
TOTAL		480.00 = (30.00 lbs/acre)

Native Trees and Shrubs

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Acer saccharinum</i>	Silver maple	25
<i>Betula nigra</i>	River birch	25
<i>Fraxinus pennsylvanica</i>	Green ash	50
<i>Quercus palustris</i>	Pin oak	25
TOTAL TREES		125

DRAINAGE CHANNEL SIDESLOPE IMPACT AREA (0.03 acre)

Slope Stabilization Mix (36.00 pounds/acre)

Native Component		
<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Andropogon gerardii</i>	Big bluestem	20.00
<i>Bouteloua curtipendula</i>	Side-oats grama	3.00
<i>Elymus canadensis</i>	Canada wild-rye	5.00
<i>Panicum virgatum</i>	Switch grass	12.00
<i>Schizachyrium scoparium</i>	Little bluestem	32.00
<i>Sorghastrum nutans</i>	Indian grass	<u>24.00</u>
TOTAL NATIVE GRASSES		96.00 = (6.00 lbs/acre)
Temporary Cover Component		
<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Agrostis gigantea</i>	Redtop	16.00
<i>Elymus hystrix</i>	Eastern bottlebrush grass	64.00
<i>Lolium perenne</i>	Annual rye	<u>400.00</u>
TOTAL		480.00 = (30.00 lbs/acre)

Native Trees and Shrubs

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Cornus amomum</i>	Silky dogwood	50
<i>Salix discolor</i>	Pussy willow	<u>50</u>
TOTAL TREES		100

TRANSITION ZONE IMPACT AREA (0.18 acre)

Slope Stabilization Mix (36.00 pounds/acre)

Native Component		
<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Andropogon gerardii</i>	Big bluestem	20.00
<i>Bouteloua curtipendula</i>	Side-oats grama	3.00
<i>Elymus canadensis</i>	Canada wild-rye	5.00
<i>Panicum virgatum</i>	Switch grass	12.00
<i>Schizachyrium scoparium</i>	Little bluestem	32.00
<i>Sorghastrum nutans</i>	Indian grass	<u>24.00</u>
TOTAL NATIVE GRASSES		96.00 = (6.00 lbs/acre)
Temporary Cover Component		
<u>Scientific Name</u>	<u>Common Name</u>	<u>Ounces/Acre</u>
<i>Agrostis gigantea</i>	Redtop	16.00
<i>Elymus hystrix</i>	Eastern bottlebrush grass	64.00
<i>Lolium perenne</i>	Annual rye	<u>400.00</u>
TOTAL		480.00 = (30.00 lbs/acre)

Native Trees and Shrubs

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Acer saccharum</i>	Sugar maple	25
<i>Juglans nigra</i>	Black walnut	25
<i>Liriodendron tulipifera</i>	Tulip tree	50
<i>Quercus rubra</i>	Red oak	<u>50</u>
TOTAL TREES		150

2008 Supplemental Plantings

Native Trees and Shrubs

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity</u>
<i>Acer rubrum</i>	Red maple	25
<i>Acer saccharinum</i>	Silver maple	25
<i>Betula nigra</i>	River birch	25
<i>Cornus amomum</i>	Silky dogwood	25
<i>Cornus sericea</i>	Red-osier dogwood	50
<i>Liriodendron tulipifera</i>	Tulip tree	25
<i>Quercus palustris</i>	Pin oak	25
<i>Quercus rubra</i>	Red oak	25
<i>Salix nigra</i>	Black willow	25
<i>Ulmus americana</i>	American elm	<u>25</u>
TOTAL TREES/SHRUBS		275

Appendix B: Wetland Data Sheets

DATA ENTRY FORM					
MITIGATION WETLAND MONITORING					
Special Site Notes: None					
Project Number: 040229			Project Name/Location: TRC/New Jersey		
General Site Conditions: Vegetative cover patchy.			Date: September 11, 2012		
Past and Present Weather: Early spring; sunny day of site visit.			Site Hydrology: Saturated at surface to 5" of inundation. Water table present in soil pit at 5" below soil surface.		
Wildlife: See report					
VEGETATION SAMPLING DATA					
Transect 1: Transition Zone					
Plot Number	Species Names	Rel. Cover	Plot Number	Species Names	Rel. Cover
Plot 1	<i>Ambrosia artemisiifolia</i>	3%	Plot 3 (cont.)	<i>Daucus carota</i>	5%
	<i>Euthamia graminifolia</i>	15%		<i>Erigeron strigosus</i>	2%
	<i>Juncus effusus</i>	4%		<i>Euthamia graminifolia</i>	3%
	<i>Juncus tenuis</i>	3%		<i>Microstegium vimineum</i>	2%
	<i>Lotus corniculata</i>	2%		<i>Plantago lanceolata</i>	3%
	<i>Lythrum salicaria</i>	1%		<i>Plantago major</i>	5%
	<i>Microstegium vimineum</i>	60%		<i>Potentilla simplex</i>	15%
	<i>Plantago lanceolata</i>	5%		<i>Setaria glauca</i>	1%
	<i>Potentilla simplex</i>	10%		<i>Solidago altissima</i>	10%
	<i>Rubus allegheniensis</i>	1%		<i>Solidago rugosa</i>	3%
	<i>Setaria glauca</i>	3%			
	<i>Solidago altissima</i>	10%		Plot 4	<i>Ambrosia artemisiifolia</i>
	<i>Verbena urticifolia</i>	5%	<i>Arthraxon hispidus</i>		5%
		<i>Aster pilosus</i>	5%		
Plot 2	<i>Ambrosia artemisiifolia</i>	8%	<i>Cyperus strigosus</i>		1%
	<i>Andropogon gerardii</i>	15%	<i>Echinochloa crusgali</i>		4%
	<i>Artemisia vulgaris</i>	8%	<i>Euthamia graminifolia</i>	15%	
	<i>Arthraxon hispidus</i>	2%	<i>Juncus tenuis</i>	2%	
	<i>Daucus carota</i>	5%	<i>Lotus corniculata</i>	3%	
	<i>Elaeagnus umbellata</i>	5%	<i>Panicum capillare</i>	5%	
	<i>Euthamia graminifolia</i>	10%	<i>Panicum dichotomiflorum</i>	35%	
	<i>Lotus corniculata</i>	2%	<i>Plantago lanceolata</i>	2%	
	<i>Microstegium vimineum</i>	8%	<i>Plantago major</i>	10%	
	<i>Oxalis stricta</i>	1%	<i>Polygonum pensylvanicum</i>	2%	
	<i>Panicum capillare</i>	2%	<i>Setaria faberi</i>	1%	
	<i>Panicum virgatum</i>	5%	<i>Setaria glauca</i>	5%	
	<i>Plantago major</i>	1%	<i>Verbena hastata</i>	1%	
	<i>Potentilla simplex</i>	5%			
	<i>Rubus allegheniensis</i>	3%	Plot 5	<i>Agrostis gigantea</i>	1%
	<i>Setaria glauca</i>	1%		<i>Aster pilosus</i>	5%
	<i>Solidago altissima</i>	5%		<i>Carex vulpinoidea</i>	30%
<i>Sorghastrum nutans</i>	25%	<i>Elymus canadensis</i>		1%	
<i>Verbena urticifolia</i>	2%	<i>Euthamia graminifolia</i>		7%	
		<i>Juncus tenuis</i>		5%	
Plot 3	<i>Ambrosia artemisiifolia</i>	2%		<i>Lythrum salicaria</i>	3%
	<i>Artemisia vulgaris</i>	65%		<i>Microstegium vimineum</i>	7%
	<i>Aster pilosus</i>	5%		<i>Potentilla simplex</i>	5%
	<i>Barbarea vulgaris</i>	1%		<i>Solidago altissima</i>	25%
			<i>Sorghastrum nutans</i>	5%	

VEGETATION SAMPLING DATA		
Transition Zone Inventory		
<i>Acer rubrum</i>	<i>Geranium maculatum</i>	<i>Setaria glauca</i>
<i>Achillea millefolium</i>	<i>Glechoma hederacea</i>	<i>Sisyrinchium angustifolium</i>
<i>Agostis gigantea</i>	<i>Helenium autumnale</i>	<i>Solidago altissima</i>
<i>Agrostis hyemalis</i>	<i>Hypericum perforatum</i>	<i>Solidago rugosa</i>
<i>Alliaria petiolata</i>	<i>Impatiens capensis</i>	<i>Sorghastrum nutans</i>
<i>Amaranthus albus</i>	<i>Juncus effusus</i>	<i>Taraxacum officinale</i>
<i>Ambrosia artemisiifolia</i>	<i>Juncus tenuis</i>	<i>Toxicodendron radicans</i>
<i>Andropogon gerardii</i>	<i>Lamium purpureum</i>	<i>Verbascum thapsus</i>
<i>Apocynum cannabinum</i>	<i>Lespedeza capitata</i>	<i>Verbena hastata</i>
<i>Artemisia vulgaris</i>	<i>Lespedeza stipulacea</i>	<i>Verbena urticifolia</i>
<i>Arthraxon hispidus</i>	<i>Lotus corniculata</i>	
<i>Aster pilosus</i>	<i>Lythrum salicaria</i>	
<i>Barbarea vulgaris</i>	<i>Microstegium vimineum</i>	
<i>Bidens frondosus</i>	<i>Oxalis stricta</i>	
<i>Carex crinita</i>	<i>Panicum capillare</i>	
<i>Carex lurida</i>	<i>Panicum dichotomiflorum</i>	
<i>Carex rosea</i>	<i>Panicum virgatum</i>	
<i>Carex vulpinoidea</i>	<i>Phalaris arundinacea</i>	
<i>Catalpa speciosa</i>	<i>Phytolacca americana</i>	
<i>Celastrus orbiculatus</i>	<i>Plantago lanceolata</i>	
<i>Centaurea maculosa</i>	<i>Plantago major</i>	
<i>Chrysanthemum leucanthemum</i>	<i>Poa compressa</i>	
<i>Cirsium arvense</i>	<i>Polygonum convolvulus</i>	
<i>Cornus amomum</i>	<i>Polygonum pensylvanicum</i>	
<i>Coronilla varia</i>	<i>Polygonum persicaria</i>	
<i>Cyperus strigosus</i>	<i>Polygonum punctatum</i>	
<i>Datura stramonium</i>	<i>Populus deltoides</i>	
<i>Daucus carota</i>	<i>Potentilla simplex</i>	
<i>Echinochloa crusgalli</i>	<i>Ranunculus acris</i>	
<i>Elaeagnus umbellata</i>	<i>Rosa multiflora</i>	
<i>Elymus canadensis</i>	<i>Rubus allegheniensis</i>	
<i>Elymus virginicus</i>	<i>Rudbeckia hirta</i>	
<i>Epilobium angustifolium</i>	<i>Rumex crispus</i>	
<i>Erigeron strigosus</i>	<i>Salix exigua</i>	
<i>Eupatorium perfoliatum</i>	<i>Schoenoplectus tabernaemontani</i>	
<i>Euthamia graminifolia</i>	<i>Scirpus atrovirens</i>	
<i>Fraxinus pennsylvanica</i>	<i>Setaria faberi</i>	

VEGETATION SAMPLING DATA					
Transect 2: Emergent Wetland Zone					
Plot Number	Species Names	Rel. Cover	Plot Number	Species Names	Rel. Cover
Plot 1	<i>Impatiens capensis</i>	1%	Plot 3 (cont.)	<i>Microstegium vimineum</i>	40%
	<i>Microstegium vimineum</i>	5%		<i>Panicum dichotomiflorum</i>	2%
	<i>Phalaris arundinacea</i>	40%		<i>Penthorum sedoides</i>	1%
	<i>Pilea pumila</i>	10%		<i>Pilea pumila</i>	2%
	<i>Polygonum sagittatum</i>	10%		<i>Plantago major</i>	4%
	<i>Typha latifolia</i>	20%		<i>Polygonum pensylvanicum</i>	1%
				<i>Polygonum punctatum</i>	1%
Plot 2	<i>Acalypha rhomboidea</i>	1%		<i>Populus deltoides</i>	1%
	<i>Arthraxon hispidus</i>	25%		<i>Setaria faberi</i>	1%
	<i>Bidens cernua</i>	1%		<i>Setaria glauca</i>	5%
	<i>Cyperus strigosus</i>	10%			
	<i>Echinochloa crusgalli</i>	15%	Plot 4	<i>Agrostis gigantea</i>	1%
	<i>Eleocharis obtusa</i>	2%		<i>Ambrosia artemisiifolia</i>	5%
	<i>Epilobium angustifolium</i>	2%		<i>Artemisia vulgaris</i>	1%
	<i>Lythrum salicaria</i>	8%		<i>Arthraxon hispidus</i>	25%
	<i>Mentha spicata</i>	5%		<i>Bidens frondosa</i>	1%
	<i>Microstegium vimineum</i>	35%		<i>Cyperus strigosus</i>	10%
	<i>Mikania scandens</i>	1%		<i>Echinochloa crusgalli</i>	7%
	<i>Panicum capillare</i>	5%		<i>Epilobium angustifolium</i>	2%
	<i>Panicum dichotomiflorum</i>	2%		<i>Helenium autumnale</i>	1%
	<i>Polygonum pensylvanicum</i>	2%		<i>Juncus tenuis</i>	2%
	<i>Polygonum sagittatum</i>	3%		<i>Lotus corniculatus</i>	5%
	<i>Setaria glauca</i>	1%		<i>Lythrum salicaria</i>	3%
				<i>Panicum dichotomiflorum</i>	35%
Plot 3	<i>Acalypha rhomboidea</i>	1%		<i>Penthorum sedoides</i>	1%
	<i>Ambrosia artemisiifolia</i>	2%		<i>Plantago lanceolata</i>	3%
	<i>Arthraxon hispidus</i>	15%		<i>Plantago major</i>	7%
	<i>Bidens cernua</i>	2%		<i>Polygonum aviculare</i>	1%
	<i>Bidens frondosa</i>	1%		<i>Polygonum punctatum</i>	1%
	<i>Cyperus strigosus</i>	15%		<i>Rumex crispus</i>	2%
	<i>Daucus carota</i>	1%		<i>Setaria glauca</i>	5%
	<i>Echinochloa crusgalli</i>	7%		<i>Trifolium repens</i>	3%
	<i>Epilobium angustifolium</i>	3%			
	<i>Euthamia graminifolia</i>	5%	Plot 5	<i>Acalypha rhomboidea</i>	1%
	<i>Impatiens capensis</i>	1%		<i>Ambrosia artemisiifolia</i>	10%
	<i>Leersia oryzoides</i>	4%		<i>Arthraxon hispidus</i>	15%
	<i>Lythrum salicaria</i>	3%		<i>Cyperus strigosus</i>	5%
	<i>Mentha spicata</i>	1%		<i>Echinochloa crusgalli</i>	10%

VEGETATION SAMPLING DATA					
Transect 2: Emergent Wetland Zone					
Plot Number	Species Names	Rel. Cover	Plot Number	Species Names	Rel. Cover
Plot 5 (cont.)	<i>Euthamia graminifolia</i>	3%	Plot 6 (cont.)	<i>Euthamia graminifolia</i>	15%
	<i>Helenium autumnale</i>	2%		<i>Helenium autumnale</i>	1%
	<i>Juncus tenuis</i>	1%		<i>Lotus corniculata</i>	10%
	<i>Lotus corniculata</i>	10%		<i>Lythrum salicaria</i>	3%
	<i>Lythrum salicaria</i>	5%		<i>Mentha spicata</i>	1%
	<i>Mentha spicata</i>	1%		<i>Microstegium vimineum</i>	3%
	<i>Panicum dichotomiflorum</i>	60%		<i>Panicum capillare</i>	5%
	<i>Plantago lanceolata</i>	2%		<i>Panicum dichotomiflorum</i>	25%
	<i>Plantago major</i>	5%		<i>Panicum virgatum</i>	3%
	<i>Polygonum persicaria</i>	1%		<i>Plantago lanceolata</i>	5%
				<i>Plantago major</i>	15%
				<i>Polygonum persicaria</i>	5%
Plot 6	<i>Acalypha rhomboidea</i>	1%		<i>Potentilla simplex</i>	2%
	<i>Ambrosia artemisiifolia</i>	5%		<i>Setaria faberi</i>	1%
	<i>Artemisia vulgaris</i>	2%		<i>Setaria glauca</i>	5%
	<i>Arthraxon hispidus</i>	30%		<i>Solidago altissima</i>	2%
	<i>Cyperus strigosus</i>	5%		<i>Trifolium repens</i>	2%
	<i>Dactyloctenium aegyptium</i>	2%		<i>Verbena hastata</i>	1%
	<i>Daucus carota</i>	1%			
	<i>Echinochloa crusgalli</i>	5%			
	<i>Epilobium angustifolium</i>	2%			

VEGETATION SAMPLING DATA		
Emergent Wetland Zone Inventory		
Hydrology: Soil saturated at surface to 4" inundation.		
Species Names	Species Names	Species Names
<i>Acalypha rhomboidea</i>	<i>Epilobium coloratum</i>	<i>Phragmites australis</i>
<i>Acer rubrum</i>	<i>Erechtites hieracifolia</i>	<i>Pilea pumila</i>
<i>Acer saccharinum</i>	<i>Eupatorium perfoliatum</i>	<i>Plantago lanceolata</i>
<i>Agrostis gigantea</i>	<i>Euthamia graminifolia</i>	<i>Plantago major</i>
<i>Amaranthus albus</i>	<i>Fraxinus pennsylvanica</i>	<i>Polygonum aviculare</i>
<i>Ambrosia artemisiifolia</i>	<i>Galium aparine</i>	<i>Polygonum pensylvanicum</i>
<i>Arisaema triphyllum</i>	<i>Geum canadense</i>	<i>Polygonum persicaria</i>
<i>Artemisia vulgaris</i>	<i>Helenium autumnale</i>	<i>Polygonum punctatum</i>
<i>Arthraxon hispidus</i>	<i>Impatiens capensis</i>	<i>Polygonum sagittatum</i>
<i>Asclepias incarnata</i>	<i>Iris virginica</i>	<i>Polygonum virginianum</i>
<i>Barbarea vulgaris</i>	<i>Juncus canadensis</i>	<i>Populus deltoides</i>
<i>Bidens cernuus</i>	<i>Juncus effusus</i>	<i>Potentilla simplex</i>
<i>Bidens frondosus</i>	<i>Juncus tenuis</i>	<i>Quercus palustris</i>
<i>Boehmeria cylindrica</i>	<i>Leersia oryzoides</i>	<i>Ranunculus acris</i>
<i>Cardamine douglassii</i>	<i>Lobelia cardinalis</i>	<i>Rosa multiflora</i>
<i>Carex crinita</i>	<i>Lobelia siphilitica</i>	<i>Rubus allegheniensis</i>
<i>Carex hystericina</i>	<i>Lonicera tatarica</i>	<i>Rumex crispus</i>
<i>Carex lurida</i>	<i>Lotus corniculata</i>	<i>Rumex obtusifolius</i>
<i>Carex rosea</i>	<i>Ludwigia palustris</i>	<i>Sagittaria latifolia</i>
<i>Carex vulpinoidea</i>	<i>Lythrum salicaria</i>	<i>Schoenoplectus pungens</i>
<i>Chrysanthemum leucanthemum</i>	<i>Mentha spicata</i>	<i>Schoenoplectus tabernaemontani</i>
<i>Cirsium arvense</i>	<i>Microstegium vimineum</i>	<i>Scirpus cyperinus</i>
<i>Cornus amomum</i>	<i>Mikania scandens</i>	<i>Setaria faberi</i>
<i>Cyperus strigosus</i>	<i>Mimulus ringens</i>	<i>Setaria glauca</i>
<i>Dactyloctenium aegyptium</i>	<i>Panicum capillare</i>	<i>Solidago altissima</i>
<i>Daucus carota</i>	<i>Panicum dichotomiflorum</i>	<i>Solidago gigantea</i>
<i>Desmodium ciliare</i>	<i>Panicum virgatum</i>	<i>Toxicodendron radicans</i>
<i>Echinochloa crusgalli</i>	<i>Parthenocissus quinquefolia</i>	<i>Trifolium repens</i>
<i>Elaeagnus umbellata</i>	<i>Pennisetum alopecuroides</i>	<i>Typha angustifolia</i>
<i>Eleocharis obtusa</i>	<i>Penthorum sedoides</i>	<i>Typha latifolia</i>
<i>Epilobium angustifolium</i>	<i>Phalaris arundinacea</i>	<i>Verbena hastata</i>

VEGETATION SAMPLING DATA					
Transect 3: Forested Wetland Zone					
Plot Number	Species Names	Rel. Cover	Plot Number	Species Names	Rel. Cover
Plot 1	<i>Arthraxon hispidus</i>	45%	Plot 3 (cont.)	<i>Lotus corniculata</i>	15%
	<i>Carex hystericina</i>	15%		<i>Lythrum salicaria</i>	5%
	<i>Leersia oryzoides</i>	3%		<i>Mentha spicata</i>	1%
	<i>Phalaris arundinacea</i>	20%		<i>Microstegium vimineum</i>	5%
	<i>Pilea pumila</i>	5%		<i>Panicum capillare</i>	2%
	<i>Polygonum sagittatum</i>	3%		<i>Panicum dichotomiflorum</i>	5%
	<i>Typha latifolia</i>	10%		<i>Plantago major</i>	20%
	<i>Verbena urticifolia</i>	1%		<i>Polygonum punctatum</i>	5%
				<i>Rumex crispus</i>	2%
Plot 2	<i>Ambrosia artemisiifolia</i>	2%		<i>Setaria glauca</i>	7%
	<i>Artemisia vulgaris</i>	2%		<i>Solidago altissima</i>	2%
	<i>Arthraxon hispidus</i>	60%		<i>Verbena urticifolia</i>	2%
	<i>Cyperus strigosus</i>	2%			
	<i>Euthamia graminifolia</i>	10%	Plot 4	<i>Artemisia vulgaris</i>	3%
	<i>Helenium autumnale</i>	7%		<i>Arthraxon hispidus</i>	2%
	<i>Lotus corniculata</i>	5%		<i>Cyperus strigosus</i>	5%
	<i>Panicum capillare</i>	3%		<i>Dactyloctenium aegyptium</i>	1%
	<i>Panicum dichotomiflorum</i>	5%		<i>Euthamia graminifolia</i>	5%
	<i>Plantago lanceolata</i>	3%		<i>Helenium autumnale</i>	15%
	<i>Plantago major</i>	15%		<i>Lotus corniculata</i>	20%
	<i>Polygonum pensylvanicum</i>	2%		<i>Lythrum salicaria</i>	7%
	<i>Setaria glauca</i>	7%		<i>Microstegium vimineum</i>	15%
	<i>Trifolium repens</i>	1%		<i>Panicum dichotomiflorum</i>	15%
	<i>Verbena urticifolia</i>	1%		<i>Plantago lanceolata</i>	5%
				<i>Plantago major</i>	10%
Plot 3	<i>Acalypha rhomboidea</i>	1%		<i>Polygonum aviculare</i>	2%
	<i>Artemisia vulgaris</i>	3%		<i>Polygonum pensylvanicum</i>	3%
	<i>Arthraxon hispidus</i>	20%		<i>Verbena urticifolia</i>	3%
	<i>Coryza canadensis</i>	2%			
	<i>Cyperus strigosus</i>	5%	Plot 5	<i>Ambrosia artemisiifolia</i>	10%
	<i>Daucus carota</i>	2%		<i>Arthraxon hispidus</i>	5%
	<i>Echinochloa crusgalli</i>	5%		<i>Cyperus strigosus</i>	2%
	<i>Helenium autumnale</i>	8%		<i>Echinochloa crusgalli</i>	2%

VEGETATION SAMPLING DATA					
Transect 3: Forested Wetland Zone					
Plot Number	Species Names	Rel. Cover	Plot Number	Species Names	Rel. Cover
Plot 5 (cont.)	<i>Eupatorium perfoliatum</i>	1%	Plot 6 (cont.)	<i>Eupatorium perfoliatum</i>	7%
	<i>Euthamia graminifolia</i>	5%		<i>Euthamia graminifolia</i>	8%
	<i>Helenium autumnale</i>	5%		<i>Helenium autumnale</i>	15%
	<i>Lotus corniculata</i>	25%		<i>Juncus tenuis</i>	2%
	<i>Lythrum salicaria</i>	3%		<i>Lotus corniculata</i>	7%
	<i>Microstegium vimineum</i>	15%		<i>Microstegium vimineum</i>	8%
	<i>Panicum capillare</i>	20%		<i>Panicum capillare</i>	10%
	<i>Panicum dichotomiflorum</i>	30%		<i>Panicum dichotomiflorum</i>	5%
	<i>Plantago major</i>	15%		<i>Plantago major</i>	8%
	<i>Polygonum pensylvanicum</i>	1%		<i>Polygonum pensylvanicum</i>	5%
	<i>Rumex crispus</i>	2%		<i>Polygonum punctatum</i>	5%
	<i>Setaria glauca</i>	3%		<i>Potentilla simplex</i>	2%
				<i>Setaria faberi</i>	1%
Plot 6	<i>Ambrosia artemisiifolia</i>	7%		<i>Setaria glauca</i>	5%
	<i>Artemisia vulgaris</i>	5%			
	<i>Bidens frondosus</i>	1%			
	<i>Cyperus strigosus</i>	10%			
	<i>Dactyloctenium aegyptium</i>	2%			
	<i>Daucus carota</i>	1%			
	<i>Echinochloa crusgalli</i>	2%			

VEGETATION SAMPLING DATA		
Forested Wetland Zone Inventory		
Hydrology: Soil saturated to 5" inundation.		
Species Names	Species Names	Species Names
<i>Acalypha rhomboidea</i>	<i>Eleusine indica</i>	<i>Plantago major</i>
<i>Acer rubrum</i>	<i>Elymus canadensis</i>	<i>Polygonum aviculare</i>
<i>Acer saccharinum</i>	<i>Elymus virginicus</i>	<i>Polygonum convolvulus</i>
<i>Achillea millefolium</i>	<i>Epilobium angustifolium</i>	<i>Polygonum pensylvanicum</i>
<i>Agrostis gigantea</i>	<i>Erechtites hieracifolia</i>	<i>Polygonum punctatum</i>
<i>Alliaria petiolata</i>	<i>Eupatorium perfoliatum</i>	<i>Polygonum sagittatum</i>
<i>Allium vineale</i>	<i>Eupatorium serotinum</i>	<i>Polygonum virginianum</i>
<i>Ambrosia artemisiifolia</i>	<i>Euthamia graminifolia</i>	<i>Potentilla simplex</i>
<i>Andropogon gerardii</i>	<i>Fragaria virginiana</i>	<i>Quercus palustris</i>
<i>Artemisia vulgaris</i>	<i>Fraxinus pennsylvanica</i>	<i>Ranunculus acris</i>
<i>Arthraxon hispidus</i>	<i>Glechoma hederacea</i>	<i>Rhus typhina</i>
<i>Aster lanceolatus</i>	<i>Helenium autumnale</i>	<i>Rosa multiflora</i>
<i>Aster lateriflorus</i>	<i>Impatiens capensis</i>	<i>Rudbeckia laciniata</i>
<i>Aster pilosus</i>	<i>Juncus effusus</i>	<i>Rumex crispus</i>
<i>Aster umbellatus</i>	<i>Juncus tenuis</i>	<i>Salix exigua</i>
<i>Barbarea vulgaris</i>	<i>Lamium purpureum</i>	<i>Schoenoplectus pungens</i>
<i>Bidens cernuus</i>	<i>Leersia oryzoides</i>	<i>Scirpus atrovirens</i>
<i>Bidens frondosus</i>	<i>Leonurus cardiaca</i>	<i>Scirpus cyperinus</i>
<i>Cardamine douglassii</i>	<i>Lepidium campestre</i>	<i>Setaria faberi</i>
<i>Carex crinita</i>	<i>Liriodendron tulipifera</i>	<i>Setaria glauca</i>
<i>Carex hystericina</i>	<i>Lobelia siphilitica</i>	<i>Smilax rotundifolia</i>
<i>Carex intumescens</i>	<i>Lotus corniculata</i>	<i>Solidago altissima</i>
<i>Carex lurida</i>	<i>Lycopus americanus</i>	<i>Solidago gigantea</i>
<i>Carex rosea</i>	<i>Lythrum salicaria</i>	<i>Solidago rugosa</i>
<i>Carex vulpinoidea</i>	<i>Melilotus officinalis</i>	<i>Sorghastrum nutans</i>
<i>Circaea lutetiana</i>	<i>Mentha spicata</i>	<i>Symplocarpus foetidus</i>
<i>Cirsium arvense</i>	<i>Microstegium vimineum</i>	<i>Toxicodendron radicans</i>
<i>Conyza canadensis</i>	<i>Mikania scandens</i>	<i>Trifolium pratense</i>
<i>Cornus amomum</i>	<i>Myosotis scorpioides</i>	<i>Trifolium repens</i>
<i>Cyperus strigosus</i>	<i>Panicum capillare</i>	<i>Typha angustifolia</i>
<i>Datura stramonium</i>	<i>Panicum dichotomiflorum</i>	<i>Typha latifolia</i>
<i>Daucus carota</i>	<i>Penthorum sedoides</i>	<i>Verbena hastata</i>
<i>Desmodium ciliare</i>	<i>Pennisetum alopecuroides</i>	<i>Verbena urticifolia</i>
<i>Echinochloa crusgalli</i>	<i>Phalaris arundinacea</i>	<i>Verbesina alternifolia</i>
<i>Elaeagnus umbellata</i>	<i>Pilea pumila</i>	
<i>Eleocharis obtusa</i>	<i>Plantago lanceolata</i>	

Appendix C: Site Photographs



Photo 1. Photostation 1 facing southeast.



Photo 2. Photostation 2 facing northeast.

Site Photographs
May 18, 2012
L.E. Carpenter & Company
Wetland Restoration Area
Wharton, Morris County, New Jersey

Cardno JFNew
 # 040229



11181 Marwill Avenue West Olive, MI 49460
 Phone 616-847-1680 / Fax 616-847-9970
www.jfnew.com



Photo 3. Emergent Zone facing west.



Photo 4. Forested Zone facing southeast.

Site Photographs
May 18, 2012
L.E. Carpenter & Company
Wetland Restoration Area
Wharton, Morris County, New Jersey

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Photo 5. Emergent Zone facing west.



Photo 6. Forested Zone facing southeast.

Site Photographs
May 18, 2012
L.E. Carpenter & Company
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Wharton, Morris County, New Jersey

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Photo 7. Forested Zone facing west.



Photo 8. Separate Transition Zone facing west.

Site Photographs
May 18, 2012
L.E. Carpenter & Company
Wetland Restoration Area
Wharton, Morris County, New Jersey

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Appendix D:

NJDEP Permit 1439-04-0001.1



State of New Jersey

Department of Environmental Protection

Bradley M. Campbell
Commissioner

Richard J. Codey
Acting Governor

Land Use Regulation Program
P.O. Box 439, Trenton, NJ 08625-0439
Fax # (609) 292-8115
www.state.nj.us/dcp/landuse

FEB 25 2005

Mr. Nicholas Clevett
RMT, Inc., Michigan
2025 E. Beltline Avenue SE, Suite 402
Grand Rapids, MI 49546

RE: Authorization for Freshwater Wetlands Statewide General Permit No. 4

File No.: 1439-04-0001.1 (FWW 040001)

Applicant: L.E. Carpenter & Company

Block: 301; Lot: 1

Block: 801; Lots: 3, 4, & 5

Wharton Borough, Morris County

Nearest Waterway: Rockaway River

Passaic River Basin

Dear Mr. Clevett:

The Land Use Regulation Program has reviewed the referenced application for a Statewide General Permit authorization pursuant to the requirements of the Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:7A. The proposed activity is authorized by Statewide General Permit No. 4, which allows regulated activities in freshwater wetlands, transition areas and State open waters for the investigation, cleanup or removal of hazardous substances or pollutants, which are undertaken, authorized or otherwise expressly approved in writing by the Department of Environmental Protection (Department).

Limit of Authorized Disturbance

The approved plans are prepared by RMT, Inc., dated February 21, 2005, last revised February 21, 2005, and entitled:

"L.E. Carpenter, Wetland and Stream Encroachment Permit Applications, Wharton, New Jersey"

"F3 - Wetland Impact Map", Sheet No. F3 of 7;

"F4 - Wetland Restoration Plan", Sheet No. F4 of 7;

"F5 - Construction Staging and Excavation Plan", Sheet No. F5 of 7;

"F6 - Final Grading Plan", Sheet No. F6 of 7;

"F7 - Details", Sheet No. F7 of 7

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Based on the approved plans, the authorized activity involves the disturbance of approximately 0.42 of an acre of freshwater wetlands and/or State open waters and approximately 0.19 acres of wetland transition areas for removal of contaminated soil and restoration of the disturbed areas. Any additional disturbance of freshwater wetlands, State open waters or transition areas besides that shown on the approved plans shall be considered a violation of the Freshwater Wetlands Protection Act unless the activity is exempt or a permit is obtained prior to the start of the disturbance from the Land Use Regulation Program.

Permit Conditions

The activities allowed by this authorization shall comply with the following conditions. Failure to comply with these conditions shall constitute a violation of the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.).

Special Conditions

1. All regulated activities at this existing Superfund site must be in accordance with the requirements of the Department's Site Remediation Program and the United States Environmental Protection Agency, including any requirements contained within an approved Remedial Action Workplan.
2. In order to protect the trout maintenance and trout stocked waters of the Rockaway River, any proposed grading or construction activities within the banks of this river are prohibited between March 15 and June 15 of each year. In addition, any activity within the 100-year flood plain or flood hazard area of this watercourse which could introduce sediment into said stream or which could cause an increase in the natural level of turbidity is also prohibited during this period. The Department reserves the right to suspend all regulated activities on site should it be determined that the applicant has not taken proper precautions to ensure continuous compliance with this condition.
3. All backfill soils shall consist of clean, suitable material free from toxic pollutants in toxic amounts.
4. In addition to restoration of the wetland transition area as shown on the approved plan entitled "F4- Wetland Restoration Plan", the applicant shall also restore an area of wetland transition area not currently shown on the plan. This area extends 50' from the wetlands on the Wharton Enterprise property. These wetlands are classified as Intermediate resource value. This additional wetland transition area is drawn on the attached map portion. The restoration of this additional area shall be consistent with the notes on Sheet No. F4 of 7.
5. The mitigation project must be conducted prior to or concurrent with the construction of the approved project.

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6. Mitigate for the loss of 0.16 acres of emergent wetlands and 0.26 acres of forested and scrub/shrub wetlands through an on-site restoration project as shown on the plan entitled "F4 - Wetland Restoration Plan, L.E. Carpenter, Wetland and Stream Encroachment Permit Applications, Wharton, New Jersey", dated February 21, 2005, last revised February 21, 2005, and prepared by RMT, Inc. In the event there is a conflict between the permit conditions and the approved mitigation plan and proposal the permit conditions take precedent.
7. The permittee shall notify the Land Use Regulation Program, in writing, at least thirty (30) days in advance of the start of construction of the wetland mitigation project for an on-site pre-construction meeting between the permittee, the contractor, the consultant and the Program.
8. The mitigation designer must be present during critical stages of construction of the mitigation project this includes but is not limited to herbicide applications, sub-grade inspection, final grade inspection, and planting inspection to ensure the intent of the mitigation design and their predicted wetland hydrology is realized in the landscape. Mitigation designs are not static documents and changes may be necessary to ensure success of the project. It shall be the prerogative of the mitigation consultant to make changes to the design should field conditions warrant such action.
9. Immediately following final grading of the site, a disc must be run over the site to eliminate compaction. The mitigation designer must be present to oversee this phase of the project and confirm with the Department this activity has occurred prior to planting of the site.
10. Immediately following the final grading of the mitigation site and prior to planting, the permittee shall notify the Program for a post-grading construction meeting between the permittee, contractor, consultant and the Program. The permittee must give the Program at least thirty (30) days notice prior to the date of this meeting.
11. Within 30 days following the final grading and planting of the mitigation project, the permittee shall submit a final report to the Land Use Regulation Program. The final report shall contain, at a minimum, the following information:
 - a. A completed WETLAND MITIGATION PROJECT COMPLETION OF CONSTRUCTION FORM (attached) which certifies that the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished;
 - b. As built plans which depict final grade elevations at one foot contours and include a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes;
 - c. Show on the as-built plans that the boundaries of the wetland mitigation area has been visibly marked with 3 inch white PVC pipe extending 4 feet above the ground surface. The stakes must remain on the site for the entire monitoring period;

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- d. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983;
 - e. To document that the required amount of soil has been placed/replaced over the entire area of the mitigation site, provide a minimum of 6 soil profile descriptions to a depth of 20 inches. The location of each soil profile description should be depicted on the as built plan as well as provide the GPS waypoints in NJ state plane coordinates NAD 1983;
 - f. Submit soil test results demonstrating at least 8% organic carbon content (by weight) was incorporated into the A-horizon for sandy soil and for all other soil types 12% organic content or if manmade top soil was used it consisted of equal volumes of organic and mineral materials;
 - g. The permittee shall post the mitigation area with several permanent signs, which identify the site as a wetland mitigation project and that mowing, cutting, dumping and draining of the property is prohibited; and
 - h. The sign must also state the name of the permittee, LURP permit number along with a contact name and phone number.
12. If the Program determines that the mitigation project is not constructed in conformance with the approved plan, the permittee will be notified in writing and will have 60 days to submit a proposal to indicate how the project will be corrected. No financial surety will be released by the Program until the permittee demonstrates that the mitigation project is constructed in conformance with the approved plan, all soil has been stabilized and there is no active erosion.
13. The permittee shall monitor the mitigation project for 5 full growing seasons if it is a proposed forested or scrub/shrub wetland and 3 full growing seasons for an emergent wetland or State open water after the mitigation project has been constructed. The permittee shall submit monitoring reports to the Land Use Regulation Program no later than December 31st of each monitoring year (All monitoring reports must include the standard items identified in the attachment and the information requested below).
14. All monitoring report will include all the following information (see attached monitoring report checklist):
- a. All monitoring reports except the final one must include documentation that it is anticipated, based on field data, that the goals of the wetland mitigation project including the transition area, as stated in the approved wetland mitigation proposal and the permit will be satisfied. If the permittee is finding problems with the mitigation project and does not anticipate the site will be a full success then recommendations on how to rectify the problems must be included in the report with a time frame in which they will be completed;
 - b. All monitoring reports except the final one must include field data to document that the site is progressing towards 85 percent survival and 85 percent area coverage of mitigation plantings or target hydrophytes (Target hydrophytes are non-invasive native species to the area and similar to ones identified on the mitigation planting plan). If the proposed plant community is a scrub/shrub or a forested wetland the permittee must also demonstrate each year with data that the woody species are thriving, increasing in stem density and height each year. If the field data shows that the mitigation project is failing to meet the vegetation survival, coverage and health goals, the monitoring

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report should contain a discussion of steps that will be taken to rectify the problem, including a schedule of implementation;

- c. All monitoring reports except the final one must include documentation of any invasive or noxious species (see below for list of species) colonizing the site and how they are being eliminated. The permittee is required to eliminate either through hand-pulling, application of a pesticide or other Department approved method any occurrence of an invasive/noxious species on the mitigation site during the monitoring period;
 - d. All monitoring reports except the final one must include documentation that demonstrates the proposed hydrologic regime as specified in the mitigation proposal appears to be met. If the permittee is finding problems with the mitigation project and does not anticipate the proposed hydrologic regime will be or has not been met then recommendations on how to rectify the problem must be included in the report along with a time frame within which it will be completed;
 - e. The final monitoring report must include documentation to demonstrate that the goals of the wetland mitigation project including the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. Documentation for this report will also include a field wetland delineation of the wetland mitigation project based on techniques as specified in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989);
 - f. The final monitoring report must include documentation the site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes. The permittee must also document that all plant species are healthy and thriving and if the proposed plant community contains trees demonstrate that the trees are at least five feet in height;
 - g. The final monitoring report must include documentation demonstrating the site is less than 10 percent occupied by invasive or noxious species such as but not limited to *Phalaris arundinacea* (Reed canary grass), *Phragmites australis* (Common reed grass), *Pueraria lobata* (Kudzu), *Typha latifolia* (Broad-leaved cattail), *Typha angustifolia* (Narrowed leaved cattail), *Lythrum salicaria* (Purple loosestrife), *Ailanthus altissima* (Tree-of-heaven), *Berberis thunbergi* (Japanese barberry), *Berberis vulgaris* (Common barberry), *Elaeagnus angustifolia* (Russian olive), *Elaeagnus umbellata* (Autumn olive), *Ligustrum obtusifolium* (Japanese privet), *Ligustrum vulgare* (Common privet) and *Rosa multiflora* (Multiflora rose);
 - h. The final monitoring report must include documentation that demonstrates that the proposed hydrologic regime as specified in the mitigation proposal, which proves the mitigation site is a wetland has been satisfied. The documentation shall include when appropriate monitoring well data, stream gauge data, photographs and field observation notes collected throughout the monitoring period; and
 - i. The final monitoring report must include documentation that the site contains hydric soils or there is evidence of reduction occurring in the soil throughout the delineated wetlands.
15. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Program will make the finding that the mitigation project is either a

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success or a failure. This mitigation project will be considered successful if the permittee demonstrates all of the following:

- a. That the goals of the wetland mitigation project including acreage and the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. The permittee must submit a field wetland delineation of the wetland mitigation project based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) which shows the exact acreage of State open waters, emergent, scrub/shrub and/or forested wetlands in the mitigation area;
 - b. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes which are species native to the area and similar to ones identified on the mitigation planting plan. All plant species in the mitigation area are healthy and thriving. All trees are at least five feet in height;
 - c. The site is less than 10 percent occupied by invasive or noxious species such as but not limited to *Phalaris arundinacea* (Reed canary grass), *Phragmites australis* (Common reed grass), *Pueraria montana* (Kudzu), *Typha latifolia* (Broad-leaved cattail), *Typha angustifolia* (Narrowed leaved cattail), *Lythrum salicaria* (Purple loosestrife), *Ailanthus altissima* (Tree-of-heaven), *Berberis thunbergi* (Japanese barberry), *Berberis vulgaris* (Common barberry), *Elaeagnus angustifolia* (Russian olive), *Elaeagnus umbellata* (Autumn olive), *Ligustrum obtusifolium* (Japanese privet), *Ligustrum vulgare* (Common privet) and *Rosa multiflora* (Multiflora rose);
 - d. The site contains hydric soils or there is evidence of reduction occurring in the soil; and,
 - e. The proposed hydrologic regime as specified in the mitigation proposal, which proves the mitigation site is a wetland has been satisfied.
16. If the mitigation project is considered a failure, the permittee is required to submit a revised mitigation plan to rectify the wetland mitigation site. The plan shall be submitted within 60 days of receipt of the letter from the Program indicating the wetland mitigation project was a failure.
17. The permittee shall assume all liability for accomplishing corrective work should the Program determine that the compensatory mitigation has not been 100% satisfactory. Remedial work may include re-grading and/or replanting the mitigation site. This responsibility is incumbent upon the permittee until such time that the Department makes the finding that the mitigation project is successful.

In addition to the above conditions and the conditions noted at N.J.A.C. 7:7A 4.3 and 5.4, the following general conditions must be met for the activity authorized under this Statewide General Permit:

General Conditions:

18. All fill and other earth work on the lands encompassed within this permit authorization shall be stabilized in accordance with "Standards for Soil Erosion and Sediment Control in New Jersey" to prevent eroded soil from entering adjacent waterways or wetlands at any time during and subsequent to construction.

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19. This permit is revocable in accordance with DEP regulations and State law.
20. The issuance of this permit shall not be deemed to affect in any way other actions by the Department on any future application.
21. The activities shown on the approved plans shall be constructed and/or executed in conformity with any notes and details on said plans and any conditions stipulated herein.
22. No change in plans or specifications shall be made except with the prior written permission of the Department.
23. The granting of this authorization shall not be construed to in any way affect the title or ownership of the property, and shall not make the Department or the State a party in any suit or question of ownership of the property.
24. This permit is not valid and no work shall be undertaken pursuant to this authorization until all other required federal, state, and local approvals, licenses and permits necessary for commencement of work onsite have been obtained.
25. A complete, legible copy of this permit shall be kept at the work site and shall be exhibited upon request of any person.
26. The permittee shall allow the Program the right to inspect the construction site and also shall provide the Bureau of Coastal and Land Use Compliance and Enforcement, NJDEP, 401 East State Street, P.O. Box 422, Trenton, New Jersey 08625 with written notification 7 days prior to the start of the authorized work.
27. This authorization is valid for five years from the date of this letter unless more stringent standards are adopted by rule prior to this date.

Transition Area

The wetlands affected by this permit authorization are of Ordinary and Intermediate resource value. The wetland located associated with the drainage channel located along the eastern side of the site are classified as Ordinary resource value. No standard transition area is required adjacent to Ordinary resource value wetlands. The wetlands located on the adjacent Wharton Enterprise property are classified as Intermediate resource value and have a standard required transition area or buffer of 50 feet. In addition, all of the wetlands are classified as priority wetlands by the United States Environmental Protection Agency since they drain into the Passaic River Basin. This General Permit includes a transition area waiver that allows encroachment only in that portion of the transition area that has been determined by the Department to be necessary to accomplish the regulated activities. Any additional regulated activities conducted within the standard transition area shall require a separate transition area

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waiver from the Program. Regulated activities within a transition area are defined at N.J.A.C. 7:7A-2.6.

Consistency with the Areawide Water Quality Management Plan

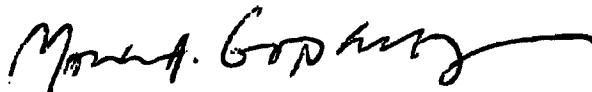
This project has not been reviewed for consistency with the relevant Water Quality Management Plan or Statewide Water Quality Management Planning Rules (N.J.A.C. 7:15). As such, there is no intended or implied approval regarding additional permits which may be required from the Department. For treatment works approvals, the consistency determination will be performed by the Bureau of Engineering and Permitting (North/South) which may be contacted at (609) 292-6894 for North (Middlesex, Hunterdon and Counties north) or (609) 633-1139 for South (Mercer, Monmouth and Counties south). For general information concerning the water quality management planning process, please contact the Division of Watershed Management at (609) 633-1179.

Appeal of Decision

In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days of the decision date by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, P.O. Box 402, Trenton NJ 08625. This request must include a completed copy of the Administrative Hearing Request Checklist.

If you have any questions regarding this authorization, please contact Susan Michniewski of our staff at (609) 633-9277. Please reference the above file number.

Sincerely,



Mark A. Godfrey, Supervisor
Morris & Bergen Counties Region
Bureau of Inland Regulation

Attachments (map sketch, mitigation forms)

- c. Anthony Cinque, Site Remediation Program
- Jodale Legg, Land Use Regulation Program - Mitigation Unit
- Nadine White, Land Use Regulation Program
- Bureau of Coastal and Land Use Compliance and Enforcement
- Wharton Borough Clerk
- Wharton Borough Construction Official
- Wharton Borough Planning Board
- Wharton Borough Environmental Commission